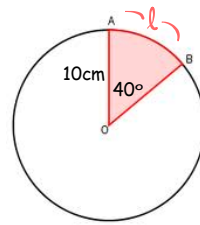
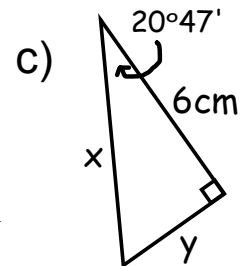
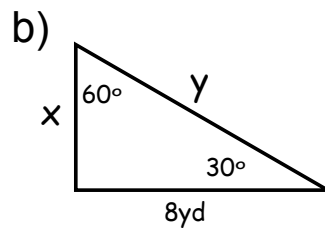
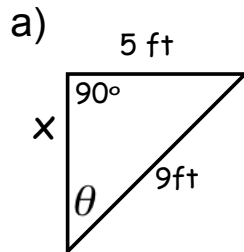


Precalc Warm Up #5-3

1. Find area, arc length, and perimeter of the sector exactly, and to nearest 100th.



2. Find x , y , (exactly if possible) and θ (to nearest 100th of a degree, and in Degrees, Minutes, Seconds, and in radians to nearest 100th.)



EXERCISES 9.7

1. Find the areas and perimeters of the following sectors:

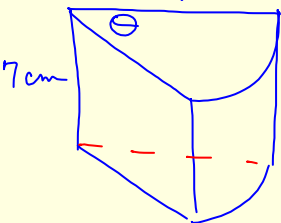
	Radius	Angle
i.	2.6cm	$\frac{\pi}{3}$

xi.	12cm	30°
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xv.	1.2cm	15°
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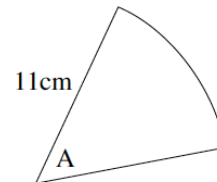
2. A cake has a circumference of 30cm and a uniform height of 7cm. A slice is to be cut from the cake with two straight cuts meeting at the centre. If the slice is to contain 50cm^3 of cake, find the angle between the two cuts, giving the answer in radians to 2 significant figures and in degrees correct to the nearest degree.

$C = 30\text{cm}$ $V = 50\text{cm}^3$ $30 = 2\pi r$
 $r = \frac{15}{\pi}$
 $V = Bh$
 $V = \frac{1}{2}\theta r^2 h$
 $50 = \frac{1}{2}\theta \left(\frac{15}{\pi}\right)^2 (7)$
 $\frac{\pi^2 100}{1575} = \theta$ ~~$\left(\frac{1575}{\pi^2}\right)$~~
 $\theta \approx 36^\circ$ $\theta = \frac{4\pi^2}{63}$ radians
 ≈ 0.63 radians
 $\hookrightarrow \frac{180^\circ}{\pi \text{ rad.}}$

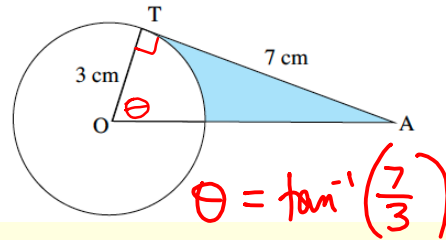


4. In the diagram, find the value of the angle A in radians, correct to three significant figures, if the perimeter is equal to 40cm.

$P = L + 2r$
 $40 = \theta r + 22$
 $40 = 11A + 22$



6. Find the shaded area in the diagram.
The dimensions are given in centimetres. O is the centre of the circle and AT is a tangent.
- Give your answer correct to three significant figures.



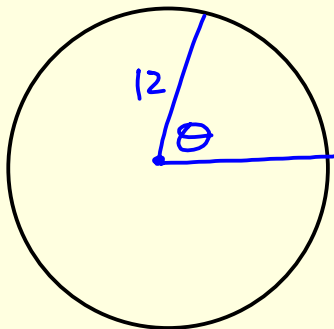
Plan: $A_{\Delta} - A_{\text{sector}}$

$$\frac{1}{2}(7)(3) - \frac{1}{2}\theta(9)$$

$$\frac{21}{2} - \left(\frac{9 \tan^{-1}\left(\frac{7}{3}\right)}{2}\right)$$

- Subtend: 1. to mark or form the boundary of
2. to be opposite to

8. Find the angle subtended at the centre of a circle of radius length 12 cm by an arc which forms a sector of area 80 sq. cm



The angle at the center is **is opposite an arc** in a circle of radius 12cm.

$$80 = \frac{1}{2}\theta 12^2$$

10. A chord of length 32 cm is drawn in a circle of radius 20 cm.

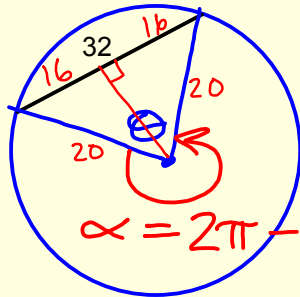
(a) Find the angle it subtends at the centre.

(b) Find :

i. the minor arc length.

ii. the major arc length.

(c) Find the area of the minor sector.



$$L = x(20)$$

$$L \approx 37.1 \text{ cm}$$

$$\frac{\theta}{2} = \sin^{-1}\left(\frac{4}{5}\right)$$

$$\theta = 2 \sin^{-1}\left(\frac{4}{5}\right)$$

$$\theta \approx 1.85 \text{ rad.}$$

$$L = (2\pi - x)(20)$$

$$L \approx 88.6 \text{ cm}$$

$$\alpha = 2\pi - x$$

$$A = \frac{1}{2}x(20)^2$$

$$\approx$$

Subtend: 1. to mark or form the boundary of
2. to be opposite to

Review..

How do you find a missing side in a right triangle when 2 sides are known?

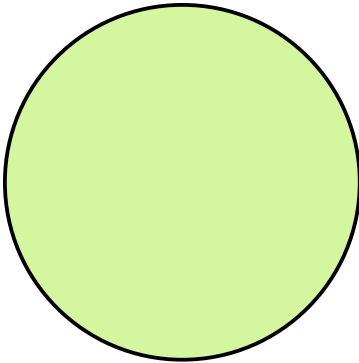
If it is either a 30-60-90 triangle, or a 45-45-90 triangle, how many sides do we need in order to find missing ones?

What are the Exact Value Triangles?

Converting: degrees radians

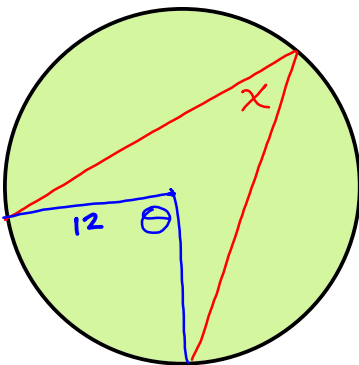
SOHCAHTOA:

Find the angle subtended at the circumference of a circle of radius length 12cm by an arc which forms a sector of area 120 sq cm



- Subtend: 1. to mark or form the boundary of
2. to be opposite to

Find the ^xangle subtended at the circumference of a circle of radius length 12cm by an arc which forms a sector of area 120 sq cm



find θ first: $A = \frac{1}{2}\theta r^2$

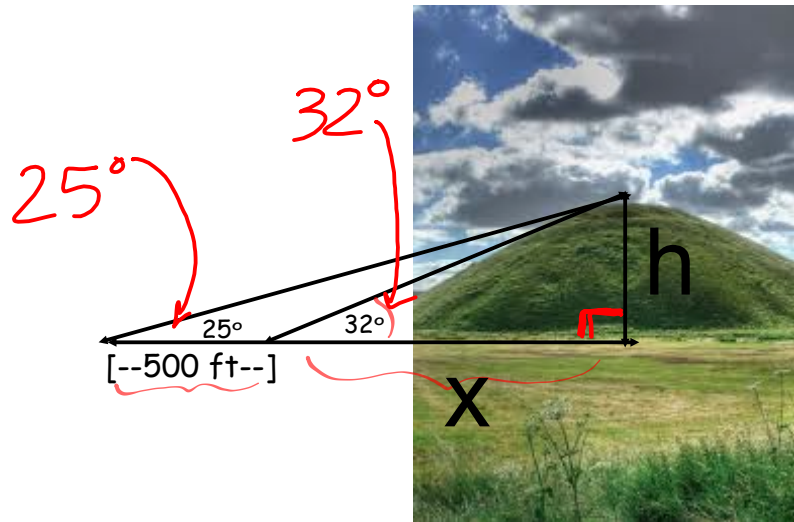
$$120 = \frac{1}{2}\theta(12)^2$$

then use Geometry:

$$x = \frac{1}{2}\theta$$

- Subtend: 1. to mark or form the boundary of
2. to be opposite to $x = \frac{5}{6}$

Find the height of the hill.



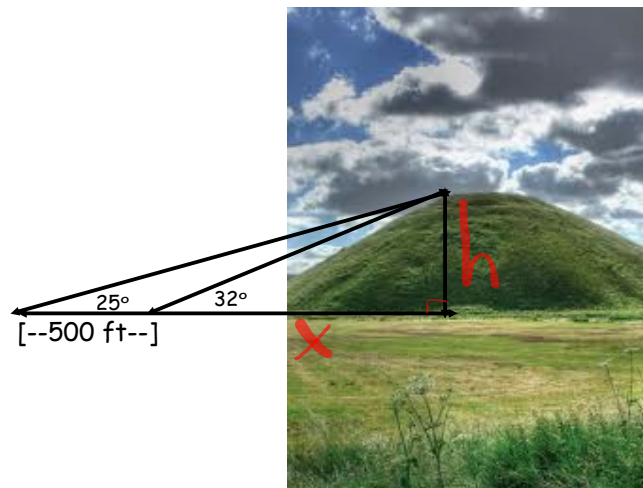
$$\tan 32 = \frac{h}{x}$$

$$x = \frac{h}{\tan 32}$$

$$\tan 25 = \frac{h}{x+500}$$

$$x+500 = \frac{h}{\tan 25}$$

$$x = \frac{h}{\tan 25} - 500$$



$$h \approx$$

$$x = \frac{h}{\tan 32}$$

$$x = \frac{h}{\tan 25} - 500$$

$$\frac{h}{\tan 32} = \frac{h}{\tan 25} - 500$$

$$500 = \frac{h}{\tan 25} - \frac{h}{\tan 32}$$

$$500 = h \left(\frac{1}{\tan 25} - \frac{1}{\tan 32} \right)$$

$$\frac{500}{\frac{1}{\tan 25} - \frac{1}{\tan 32}} = h$$

$$918.83$$

HW: SL Book p. 312

#1iii, 1vii, 3, 5, 9, 14

Draw diagrams! #14 is good problem solving and you should be able to do it if you draw the cone.

Tomorrow we will go back to the PC book for a while